

S80769691.ST25
SEQUENCE LISTING

<110> Queensland University of Technology

<120> Protein expression

<130> S80769691

<150> 2003905886
<151> 2003-10-24

<160> 20

<170> PatentIn version 3.2

<210> 1

<211> 50

<212> PRT

<213> Lactobacillus fermentum

<400> 1

Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser
1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys
20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile
35 40 45

Ile Lys
50

<210> 2

<211> 81

<212> PRT

<213> Lactobacillus fermentum

<400> 2

Ser Tyr Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp
1 5 10 15

Ile Ala Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln
20 25 30

Tyr Ile Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr
35 40 45

Ser Pro Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg
50 55 60

Tyr Gly Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp
65 70 75 80

Tyr

S80769691.ST25

<210> 3
<211> 44
<212> PRT
<213> Lactobacillus fermentum

<400> 3
Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala
1 5 10 15

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln
20 25 30

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln
35 40

<210> 4
<211> 30
<212> PRT
<213> Lactobacillus fermentum

<400> 4
Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala
1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Asn Ala
20 25 30

<210> 5
<211> 175
<212> PRT
<213> Lactobacillus fermentum

<400> 5
Asp Thr Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser
1 5 10 15

Tyr Lys Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys
20 25 30

Asn Asn Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile
35 40 45

Ile Lys Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala
50 55 60

Asn Ala Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr
65 70 75 80

Ala Gln Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr
85 90 95

Thr Ser Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala
100 105 110

S80769691.ST25

Gly Arg Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile
115 120 125

Gly Lys Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro
130 135 140

Ala Asn Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly
145 150 155 160

Ser Trp Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr
165 170 175

<210> 6

<211> 205

<212> PRT

<213> Lactobacillus fermentum

<400> 6

Met Ile Ser Lys Lys Asn Phe Ala Lys Val Ser Ala Thr Leu Gly Ala
1 5 10 15

Val Ala Leu Gly Val Ser Ala Thr Ala Thr Ala Asn Ala Asp Thr
20 25 30

Ile Tyr Thr Val Gln Ser Gly Asp Thr Leu Ser Gly Ile Ser Tyr Lys
35 40 45

Phe Ala Lys Asp Asn Ser Met Ile Asn Asp Leu Ala Lys Lys Asn Asn
50 55 60

Ile Gln Asp Ile Asn Lys Ile Phe Val Gly Gln Lys Leu Ile Ile Lys
65 70 75 80

Ser Asp Gly Glu Ile Gln Glu Tyr Asn Ala Gln Asn Ala Ala Asn Ala
85 90 95

Asn Val Ala Asn Asn Asn Thr Gln Ala Thr Gln Gln Gln Thr Ala Gln
100 105 110

Ala Gln Pro Gln Gln Ala Gln Ser Gln Ala Asn Gln Ser Tyr Thr Ser
115 120 125

Asn Ala Ser Gly Ser Glu Ala Ala Ala Lys Ala Trp Ile Ala Gly Arg
130 135 140

Glu Ser Gly Gly Asn Tyr Asn Ala Thr Asn Gly Gln Tyr Ile Gly Lys
145 150 155 160

Tyr Gln Leu Ala Ala Ser Tyr Leu Gly Gly Asp Tyr Ser Pro Ala Asn
165 170 175

S80769691.ST25

Gln Glu Arg Val Ala Asp Gln Tyr Val Ala Ser Arg Tyr Gly Ser Trp
 180 185 190

Thr Ala Ala Gln Gln Phe Trp Gln Ala Asn Gly Trp Tyr
 195 200 205

<210> 7
 <211> 90
 <212> DNA
 <213> **Lactobacillus fermentum**

<400> 7
 atgatttctta agaaaaactt tgctaaagta tctgctactc ttgggtcagt ggccttaggt 60
 gttagtgcaa cggctactgc tgctaaatgct 90

<210> 8
 <211> 150
 <212> DNA
 <213> **Lactobacillus fermentum**

<400> 8
 gacactatct acaccgtaca aagtggatgac acactttcag gtatttctta caaatttgct 60
 aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag 120
 atttttgttg gtcaaaagtt aatcatcaag 150

<210> 9
 <211> 132
 <212> DNA
 <213> **Lactobacillus fermentum**

<400> 9
 agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac 60
 aacaatactc aagctacaca acaacaaact gctcaagcac aacctaaca agcacaaagc 120
 caagctaacc aa 132

<210> 10
 <211> 246
 <212> DNA
 <213> **Lactobacillus fermentum**

<400> 10
 agctacactt caaatgcttc aggttcagaa gctgctgcta aagcttggat tgccggtcgt 60
 gaatcaggtg gtaactacaa cgccacaaac ggtcaataca ttggtaagta ccaattagct 120
 gcatcataacc ttgggtgtga ctactcacca gctaaccaag aacgcgttgc tgaccaatac 180
 gttgcaagtc gttacggttc ttggactgct gcccacaaat tctggcaagc aaacggttgg 240
 tactaa 246

<210> 11
 <211> 528
 <212> DNA
 <213> **Lactobacillus fermentum**

S80769691.ST25

<400> 11
 gacactatct acaccgtaca aagtggtgac acactttcag gtatttctta caaatttgct 60
 aaagacaaca gtatgatcaa tgatcttgct aagaagaaca atattcaaga tattaacaag 120
 atttttgttg gtcaaaagtt aatcatcaag agcgatggtg aaattcaaga atacaatgct 180
 caaaatgcag ctaatgcaaa tgtagcaaac aacaatactc aagctacaca acaacaaact 240
 gctcaagcac aacctaaca agcacaaagc caagctaacc aaagctacac ttcaaattgct 300
 tcaggttcag aagctgctgc taaagcttgg attgccggtc gtgaatcagg tggtaactac 360
 aacgccacaa acggtaata cattggtaag taccaattag ctgcatcata ccttggtggt 420
 gactactcac cagctaacca agaacgcgtt gctgaccaat acgttgcaag tcgttacggt 480
 tcttggactg ctgcccaca attctggcaa gcaaacgggtt ggtactaa 528

<210> 12
 <211> 618
 <212> DNA
 <213> *Lactobacillus fermentum*

<400> 12
 atgatttctta agaaaaactt tgctaaagta tctgctactc ttgggtgcagt ggccttaggt 60
 gtttagtgcaa cggctactgc tgctaattgct gacactatct acaccgtaca aagtggtgac 120
 acactttcag gtatttctta caaatttgct aaagacaaca gtatgatcaa tgatcttgct 180
 aagaagaaca atattcaaga tattaacaag atttttgttg gtcaaaagtt aatcatcaag 240
 agcgatggtg aaattcaaga atacaatgct caaaatgcag ctaatgcaaa tgtagcaaac 300
 aacaatactc aagctacaca acaacaaact gctcaagcac aacctaaca agcacaaagc 360
 caagctaacc aaagctacac ttcaaattgct tcaggttcag aagctgctgc taaagcttgg 420
 attgccggtc gtgaatcagg tggtaactac aacgccacaa acggtaata cattggtaag 480
 taccaattag ctgcatcata ccttggtggt gactactcac cagctaacca agaacgcgtt 540
 gctgaccaat acgttgcaag tcgttacggt tcttggactg ctgcccaca attctggcaa 600
 gcaaacgggtt ggtactaa 618

<210> 13
 <211> 90
 <212> DNA
 <213> *Lactobacillus fermentum*

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (30)..(30)

S80769691.ST25

<223> any nucleotide

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide<220>
<221> misc_feature
<222> (45)..(45)
<223> any nucleotide<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide<220>
<221> misc_feature
<222> (51)..(51)
<223> any nucleotide<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide<220>
<221> misc_feature
<222> (63)..(63)
<223> any nucleotide<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>

S80769691.ST25

<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (75)..(75)
<223> any nucleotide

<220>
<221> misc_feature
<222> (78)..(78)
<223> any nucleotide

<220>
<221> misc_feature
<222> (81)..(81)
<223> any nucleotide

<220>
<221> misc_feature
<222> (84)..(84)
<223> any nucleotide

<220>
<221> misc_feature
<222> (90)..(90)
<223> any nucleotide

<400> 13 atgathwsna araaraaytt ygcnaargtn wsngcnacny tnggngcngt ngcnytnggn 60
gtnwsgcna cngcnacngc ngcnaaygcn 90

<210> 14
<211> 150
<212> DNA
<213> **Lactobacillus fermentum**

<220>
<221> misc_feature
<222> (6)..(6)
<223> any nucleotide

<220>
<221> misc_feature
<222> (15)..(15)
<223> any nucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> any nucleotide

<220>
<221> misc_feature
<222> (24)..(24)
<223> any nucleotide

<220>
<221> misc_feature
<222> (27)..(27)
<223> any nucleotide

<220>
<221> misc_feature

S80769691.ST25

<222> (33)..(33)
<223> any nucleotide

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (87)..(87)
<223> any nucleotide

<220>
<221> misc_feature
<222> (90)..(90)
<223> any nucleotide

<220>
<221> misc_feature
<222> (129)..(129)
<223> any nucleotide

<220>
<221> misc_feature
<222> (132)..(132)
<223> any nucleotide

<220>
<221> misc_feature
<222> (141)..(141)
<223> any nucleotide

<400> 14
gayacnchat ht ayacngtnca rwsnggngay acnytnwsng gnathwsnta yaarttygcn 60
aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar 120
athttygtng gncaraaryt nathathaar 150

<210> 15
<211> 132

S80769691.ST25

<212> DNA
<213> *Lactobacillus fermentum*

<220>
<221> misc_feature
<222> (3)..(3)
<223> any nucleotide

<220>
<221> misc_feature
<222> (9)..(9)
<223> any nucleotide

<220>
<221> misc_feature
<222> (30)..(30)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>
<221> misc_feature
<222> (75)..(75)
<223> any nucleotide

<220>
<221> misc_feature
<222> (78)..(78)
<223> any nucleotide

<220>
<221> misc_feature
<222> (90)..(90)
<223> any nucleotide

<220>
<221> misc_feature
<222> (93)..(93)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (99)..(99)
<223> any nucleotide

<220>
<221> misc_feature
<222> (105)..(105)
<223> any nucleotide

<220>
<221> misc_feature
<222> (114)..(114)
<223> any nucleotide

<220>
<221> misc_feature
<222> (120)..(120)
<223> any nucleotide

<220>
<221> misc_feature
<222> (126)..(126)
<223> any nucleotide

<400> 15	60
wsngayggng arathcarga rtayaaygcn caraaygcng cnaaygcnaa ygtngcnaay	120
aayaayacnc argcnacnca rcarcaracn gcncargcnc arccncarca rgcncarwsn	
cargcnaayc ar	132

<210> 16
<211> 243
<212> DNA
<213> **Lactobacillus fermentum**

<220>
<221> misc_feature
<222> (3)..(3)
<223> any nucleotide

<220>
<221> misc_feature
<222> (9)..(9)
<223> any nucleotide

<220>
<221> misc_feature
<222> (12)..(12)
<223> any nucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> any nucleotide

<220>
<221> misc_feature
<222> (21)..(21)
<223> any nucleotide

<220>
<221> misc_feature
<222> (24)..(24)

S80769691.ST25

<223> any nucleotide

<220>
<221> misc_feature
<222> (27)..(27)
<223> any nucleotide

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (45)..(45)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>
<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (84)..(84)
<223> any nucleotide

<220>
<221> misc_feature
<222> (87)..(87)
<223> any nucleotide

<220>

S80769691.ST25

<221> misc_feature
<222> (93)..(93)
<223> any nucleotide

<220>
<221> misc_feature
<222> (105)..(105)
<223> any nucleotide

<220>
<221> misc_feature
<222> (117)..(117)
<223> any nucleotide

<220>
<221> misc_feature
<222> (120)..(120)
<223> any nucleotide

<220>
<221> misc_feature
<222> (123)..(123)
<223> any nucleotide

<220>
<221> misc_feature
<222> (126)..(126)
<223> any nucleotide

<220>
<221> misc_feature
<222> (132)..(132)
<223> any nucleotide

<220>
<221> misc_feature
<222> (135)..(135)
<223> any nucleotide

<220>
<221> misc_feature
<222> (138)..(138)
<223> any nucleotide

<220>
<221> misc_feature
<222> (147)..(147)
<223> any nucleotide

<220>
<221> misc_feature
<222> (150)..(150)
<223> any nucleotide

<220>
<221> misc_feature
<222> (153)..(153)
<223> any nucleotide

<220>
<221> misc_feature
<222> (165)..(165)
<223> any nucleotide

<220>
<221> misc_feature
<222> (168)..(168)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (171)..(171)
<223> any nucleotide

<220>
<221> misc_feature
<222> (183)..(183)
<223> any nucleotide

<220>
<221> misc_feature
<222> (186)..(186)
<223> any nucleotide

<220>
<221> misc_feature
<222> (189)..(189)
<223> any nucleotide

<220>
<221> misc_feature
<222> (192)..(192)
<223> any nucleotide

<220>
<221> misc_feature
<222> (198)..(198)
<223> any nucleotide

<220>
<221> misc_feature
<222> (201)..(201)
<223> any nucleotide

<220>
<221> misc_feature
<222> (207)..(207)
<223> any nucleotide

<220>
<221> misc_feature
<222> (210)..(210)
<223> any nucleotide

<220>
<221> misc_feature
<222> (213)..(213)
<223> any nucleotide

<220>
<221> misc_feature
<222> (231)..(231)
<223> any nucleotide

<220>
<221> misc_feature
<222> (237)..(237)
<223> any nucleotide

<400> 16
wsntayacnw snaaygcnws nggnwsngar gcngcngcna argcntggat hgcnngnmgn 60
garwsnggng gnaaytayaa ygcnaacnaay ggncartaya thggnaarta ycarytngcn 120
gcnwsntayy tnggnggnga ytaywsncn gcnaaycarg armgngtngc ngaycartay 180

s80769691.ST25
gtngcnwsnm gntayggnw s ntggacngcn gcncarcart tytggcargc naayggntgg 240
tay 243

<210> 17
<211> 525
<212> DNA
<213> **Lactobacillus fermentum**

<220>
<221> misc_feature
<222> (6)..(6)
<223> any nucleotide

<220>
<221> misc_feature
<222> (15)..(15)
<223> any nucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> any nucleotide

<220>
<221> misc_feature
<222> (24)..(24)
<223> any nucleotide

<220>
<221> misc_feature
<222> (27)..(27)
<223> any nucleotide

<220>
<221> misc_feature
<222> (33)..(33)
<223> any nucleotide

<220>
<221> misc_feature
<222> (36)..(36)
<223> any nucleotide

<220>
<221> misc_feature
<222> (39)..(39)
<223> any nucleotide

<220>
<221> misc_feature
<222> (42)..(42)
<223> any nucleotide

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature

S80769691.ST25

<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (87)..(87)
<223> any nucleotide

<220>
<221> misc_feature
<222> (90)..(90)
<223> any nucleotide

<220>
<221> misc_feature
<222> (129)..(129)
<223> any nucleotide

<220>
<221> misc_feature
<222> (132)..(132)
<223> any nucleotide

<220>
<221> misc_feature
<222> (141)..(141)
<223> any nucleotide

<220>
<221> misc_feature
<222> (153)..(153)
<223> any nucleotide

<220>
<221> misc_feature
<222> (159)..(159)
<223> any nucleotide

<220>
<221> misc_feature
<222> (180)..(180)
<223> any nucleotide

<220>
<221> misc_feature
<222> (189)..(189)
<223> any nucleotide

<220>
<221> misc_feature
<222> (192)..(192)
<223> any nucleotide

<220>
<221> misc_feature
<222> (198)..(198)
<223> any nucleotide

<220>
<221> misc_feature
<222> (204)..(204)
<223> any nucleotide

<220>
<221> misc_feature
<222> (207)..(207)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (219) .. (219)
<223> any nucleotide

<220>
<221> misc_feature
<222> (225) .. (225)
<223> any nucleotide

<220>
<221> misc_feature
<222> (228) .. (228)
<223> any nucleotide

<220>
<221> misc_feature
<222> (240) .. (240)
<223> any nucleotide

<220>
<221> misc_feature
<222> (243) .. (243)
<223> any nucleotide

<220>
<221> misc_feature
<222> (249) .. (249)
<223> any nucleotide

<220>
<221> misc_feature
<222> (255) .. (255)
<223> any nucleotide

<220>
<221> misc_feature
<222> (264) .. (264)
<223> any nucleotide

<220>
<221> misc_feature
<222> (270) .. (270)
<223> any nucleotide

<220>
<221> misc_feature
<222> (276) .. (276)
<223> any nucleotide

<220>
<221> misc_feature
<222> (285) .. (285)
<223> any nucleotide

<220>
<221> misc_feature
<222> (291) .. (291)
<223> any nucleotide

<220>
<221> misc_feature
<222> (294) .. (294)
<223> any nucleotide

<220>
<221> misc_feature
<222> (300) .. (300)

<223> any nucleotide S80769691.ST25

<220>
<221> misc_feature
<222> (303)..(303)
<223> any nucleotide

<220>
<221> misc_feature
<222> (306)..(306)
<223> any nucleotide

<220>
<221> misc_feature
<222> (309)..(309)
<223> any nucleotide

<220>
<221> misc_feature
<222> (315)..(315)
<223> any nucleotide

<220>
<221> misc_feature
<222> (318)..(318)
<223> any nucleotide

<220>
<221> misc_feature
<222> (321)..(321)
<223> any nucleotide

<220>
<221> misc_feature
<222> (327)..(327)
<223> any nucleotide

<220>
<221> misc_feature
<222> (336)..(336)
<223> any nucleotide

<220>
<221> misc_feature
<222> (339)..(339)
<223> any nucleotide

<220>
<221> misc_feature
<222> (342)..(342)
<223> any nucleotide

<220>
<221> misc_feature
<222> (348)..(348)
<223> any nucleotide

<220>
<221> misc_feature
<222> (351)..(351)
<223> any nucleotide

<220>
<221> misc_feature
<222> (354)..(354)
<223> any nucleotide

<220>

S80769691.ST25

<221> misc_feature
<222> (366)..(366)
<223> any nucleotide

<220>
<221> misc_feature
<222> (369)..(369)
<223> any nucleotide

<220>
<221> misc_feature
<222> (375)..(375)
<223> any nucleotide

<220>
<221> misc_feature
<222> (387)..(387)
<223> any nucleotide

<220>
<221> misc_feature
<222> (399)..(399)
<223> any nucleotide

<220>
<221> misc_feature
<222> (402)..(402)
<223> any nucleotide

<220>
<221> misc_feature
<222> (405)..(405)
<223> any nucleotide

<220>
<221> misc_feature
<222> (408)..(408)
<223> any nucleotide

<220>
<221> misc_feature
<222> (414)..(414)
<223> any nucleotide

<220>
<221> misc_feature
<222> (417)..(417)
<223> any nucleotide

<220>
<221> misc_feature
<222> (420)..(420)
<223> any nucleotide

<220>
<221> misc_feature
<222> (429)..(429)
<223> any nucleotide

<220>
<221> misc_feature
<222> (432)..(432)
<223> any nucleotide

<220>
<221> misc_feature
<222> (435)..(435)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (447)..(447)
<223> any nucleotide

<220>
<221> misc_feature
<222> (450)..(450)
<223> any nucleotide

<220>
<221> misc_feature
<222> (453)..(453)
<223> any nucleotide

<220>
<221> misc_feature
<222> (465)..(465)
<223> any nucleotide

<220>
<221> misc_feature
<222> (468)..(468)
<223> any nucleotide

<220>
<221> misc_feature
<222> (471)..(471)
<223> any nucleotide

<220>
<221> misc_feature
<222> (474)..(474)
<223> any nucleotide

<220>
<221> misc_feature
<222> (480)..(480)
<223> any nucleotide

<220>
<221> misc_feature
<222> (483)..(483)
<223> any nucleotide

<220>
<221> misc_feature
<222> (489)..(489)
<223> any nucleotide

<220>
<221> misc_feature
<222> (492)..(492)
<223> any nucleotide

<220>
<221> misc_feature
<222> (495)..(495)
<223> any nucleotide

<220>
<221> misc_feature
<222> (513)..(513)
<223> any nucleotide

<220>
<221> misc_feature

S80769691.ST25

<222> (519)..(519)
 <223> any nucleotide

<400> 17
 gayacnatht ayacngtnca rwsnggngay acnytnwsng gnathwsnta yaarttygcn 60
 aargayaayw snatgathaa ygayytngcn aaraaraaya ayathcarga yathaayaar
 athttygtng gncaraaryt nathathaar wsngayggng arathcarga rtayaaygcn 120
 caraaygcng cnaaygcnaa ygtngcnaay aayaayacnc argcnacnca rcarcaracn 180
 gcncargcnc arccncarca rgcncarwsn cargcnaayc arwsntayac nwsnaaygcn 240
 wsnggnwsng argcngcngc naargcntgg athgcnggnm gngarwsngg nggnaaytay 300
 aaygcnacna ayggncarta yathggnaar taycarytng cngcnwsnta yytnggngn 360
 gaytaywsnc cngcnaayca rgarmgngtn gcngaycart aygtngcnws nmgtayggn 420
 wsntggacng cngcncarca rttytggcar gcnaayggnt ggtay 480
 525

<210> 18
 <211> 615
 <212> DNA
 <213> *Lactobacillus fermentum*

<220>
 <221> misc_feature
 <222> (9)..(9)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (24)..(24)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (30)..(30)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (33)..(33)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (36)..(36)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (39)..(39)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (42)..(42)
 <223> any nucleotide

<220>
 <221> misc_feature
 <222> (45)..(45)
 <223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (48)..(48)
<223> any nucleotide

<220>
<221> misc_feature
<222> (51)..(51)
<223> any nucleotide

<220>
<221> misc_feature
<222> (54)..(54)
<223> any nucleotide

<220>
<221> misc_feature
<222> (57)..(57)
<223> any nucleotide

<220>
<221> misc_feature
<222> (60)..(60)
<223> any nucleotide

<220>
<221> misc_feature
<222> (63)..(63)
<223> any nucleotide

<220>
<221> misc_feature
<222> (66)..(66)
<223> any nucleotide

<220>
<221> misc_feature
<222> (69)..(69)
<223> any nucleotide

<220>
<221> misc_feature
<222> (72)..(72)
<223> any nucleotide

<220>
<221> misc_feature
<222> (75)..(75)
<223> any nucleotide

<220>
<221> misc_feature
<222> (78)..(78)
<223> any nucleotide

<220>
<221> misc_feature
<222> (81)..(81)
<223> any nucleotide

<220>
<221> misc_feature
<222> (84)..(84)
<223> any nucleotide

<220>
<221> misc_feature

S80769691.ST25

<222> (90)..(90)
<223> any nucleotide

<220>
<221> misc_feature
<222> (96)..(96)
<223> any nucleotide

<220>
<221> misc_feature
<222> (105)..(105)
<223> any nucleotide

<220>
<221> misc_feature
<222> (108)..(108)
<223> any nucleotide

<220>
<221> misc_feature
<222> (114)..(114)
<223> any nucleotide

<220>
<221> misc_feature
<222> (117)..(117)
<223> any nucleotide

<220>
<221> misc_feature
<222> (123)..(123)
<223> any nucleotide

<220>
<221> misc_feature
<222> (126)..(126)
<223> any nucleotide

<220>
<221> misc_feature
<222> (129)..(129)
<223> any nucleotide

<220>
<221> misc_feature
<222> (132)..(132)
<223> any nucleotide

<220>
<221> misc_feature
<222> (138)..(138)
<223> any nucleotide

<220>
<221> misc_feature
<222> (150)..(150)
<223> any nucleotide

<220>
<221> misc_feature
<222> (162)..(162)
<223> any nucleotide

<220>
<221> misc_feature
<222> (177)..(177)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (180)..(180)
<223> any nucleotide

<220>
<221> misc_feature
<222> (219)..(219)
<223> any nucleotide

<220>
<221> misc_feature
<222> (222)..(222)
<223> any nucleotide

<220>
<221> misc_feature
<222> (231)..(231)
<223> any nucleotide

<220>
<221> misc_feature
<222> (243)..(243)
<223> any nucleotide

<220>
<221> misc_feature
<222> (249)..(249)
<223> any nucleotide

<220>
<221> misc_feature
<222> (270)..(270)
<223> any nucleotide

<220>
<221> misc_feature
<222> (279)..(279)
<223> any nucleotide

<220>
<221> misc_feature
<222> (282)..(282)
<223> any nucleotide

<220>
<221> misc_feature
<222> (288)..(288)
<223> any nucleotide

<220>
<221> misc_feature
<222> (294)..(294)
<223> any nucleotide

<220>
<221> misc_feature
<222> (297)..(297)
<223> any nucleotide

<220>
<221> misc_feature
<222> (309)..(309)
<223> any nucleotide

<220>
<221> misc_feature
<222> (315)..(315)

S80769691.ST25

<223> any nucleotide

<220>

<221> misc_feature
<222> (318)..(318)

<223> any nucleotide

<220>

<221> misc_feature
<222> (330)..(330)

<223> any nucleotide

<220>

<221> misc_feature
<222> (333)..(333)

<223> any nucleotide

<220>

<221> misc_feature
<222> (339)..(339)

<223> any nucleotide

<220>

<221> misc_feature
<222> (345)..(345)

<223> any nucleotide

<220>

<221> misc_feature
<222> (354)..(354)

<223> any nucleotide

<220>

<221> misc_feature
<222> (360)..(360)

<223> any nucleotide

<220>

<221> misc_feature
<222> (366)..(366)

<223> any nucleotide

<220>

<221> misc_feature
<222> (375)..(375)

<223> any nucleotide

<220>

<221> misc_feature
<222> (381)..(381)

<223> any nucleotide

<220>

<221> misc_feature
<222> (384)..(384)

<223> any nucleotide

<220>

<221> misc_feature
<222> (390)..(390)

<223> any nucleotide

<220>

<221> misc_feature
<222> (393)..(393)

<223> any nucleotide

<220>

S80769691.ST25

<221> misc_feature
<222> (396)..(396)
<223> any nucleotide

<220>
<221> misc_feature
<222> (399)..(399)
<223> any nucleotide

<220>
<221> misc_feature
<222> (405)..(405)
<223> any nucleotide

<220>
<221> misc_feature
<222> (408)..(408)
<223> any nucleotide

<220>
<221> misc_feature
<222> (411)..(411)
<223> any nucleotide

<220>
<221> misc_feature
<222> (417)..(417)
<223> any nucleotide

<220>
<221> misc_feature
<222> (426)..(426)
<223> any nucleotide

<220>
<221> misc_feature
<222> (429)..(429)
<223> any nucleotide

<220>
<221> misc_feature
<222> (432)..(432)
<223> any nucleotide

<220>
<221> misc_feature
<222> (438)..(438)
<223> any nucleotide

<220>
<221> misc_feature
<222> (441)..(441)
<223> any nucleotide

<220>
<221> misc_feature
<222> (444)..(444)
<223> any nucleotide

<220>
<221> misc_feature
<222> (456)..(456)
<223> any nucleotide

<220>
<221> misc_feature
<222> (459)..(459)
<223> any nucleotide

S80769691.ST25

<220>
<221> misc_feature
<222> (465)..(465)
<223> any nucleotide

<220>
<221> misc_feature
<222> (477)..(477)
<223> any nucleotide

<220>
<221> misc_feature
<222> (489)..(489)
<223> any nucleotide

<220>
<221> misc_feature
<222> (492)..(492)
<223> any nucleotide

<220>
<221> misc_feature
<222> (495)..(495)
<223> any nucleotide

<220>
<221> misc_feature
<222> (498)..(498)
<223> any nucleotide

<220>
<221> misc_feature
<222> (504)..(504)
<223> any nucleotide

<220>
<221> misc_feature
<222> (507)..(507)
<223> any nucleotide

<220>
<221> misc_feature
<222> (510)..(510)
<223> any nucleotide

<220>
<221> misc_feature
<222> (519)..(519)
<223> any nucleotide

<220>
<221> misc_feature
<222> (522)..(522)
<223> any nucleotide

<220>
<221> misc_feature
<222> (525)..(525)
<223> any nucleotide

<220>
<221> misc_feature
<222> (537)..(537)
<223> any nucleotide

<220>
<221> misc_feature

S80769691.ST25

<222> (540)..(540)
<223> any nucleotide

<220>
<221> misc_feature
<222> (543)..(543)
<223> any nucleotide

<220>
<221> misc_feature
<222> (555)..(555)
<223> any nucleotide

<220>
<221> misc_feature
<222> (558)..(558)
<223> any nucleotide

<220>
<221> misc_feature
<222> (561)..(561)
<223> any nucleotide

<220>
<221> misc_feature
<222> (564)..(564)
<223> any nucleotide

<220>
<221> misc_feature
<222> (570)..(570)
<223> any nucleotide

<220>
<221> misc_feature
<222> (573)..(573)
<223> any nucleotide

<220>
<221> misc_feature
<222> (579)..(579)
<223> any nucleotide

<220>
<221> misc_feature
<222> (582)..(582)
<223> any nucleotide

<220>
<221> misc_feature
<222> (585)..(585)
<223> any nucleotide

<220>
<221> misc_feature
<222> (603)..(603)
<223> any nucleotide

<220>
<221> misc_feature
<222> (609)..(609)
<223> any nucleotide

<400> 18
atgathwsna araaraaytt ygcnaargtn wsngcnacny tnggngcngt ngcnytnggn 60
gtnwsgcna cngcnaacngc ngcnaaygcn gayacnatht ayacngtnca rwsngngay 120

s80769691.ST25

acnytnwsng gnathwsnta yaarttygcn aargayaayw snatgathaa ygayytnngcn	180
aaraaraaya ayathcarga yathaayaar athttygtng gnacaraaryt nathathaar	240
wsngayggng arathcarga rtayaaygcn caraaygcng cnaaygcnaa ygtngcnaay	300
aayaayacnc argcnacnca rcarcaracn gcncargcnc arccncarca rgcncarwsn	360
cargcnaayc arwsntayac nwsnaaygcn wsnggnwsng argcngcngc naargcntgg	420
athgcnggnm gngarwsnng nggnaaytay aaygcnaacna ayggncarta yathgnaar	480
taycarytng cngcnwsnta yytnggngn gaytaywsnc cngcnaayca rgarmngntn	540
gcngaycart aygtngcnws nmgnatayggn wsntggacng cngcncarca rttytggcar	600
gcnaayggnt ggtay	615

<210> 19
 <211> 310
 <212> DNA
 <213> *Lactobacillus fermentum*

<400> 19	
taaagatagt tataaacgga aaataaaggg cggttttggc gcaaatatgc aatttttgcg	60
aagaaatcag ctttttttat ttatTTTTt ataaatcatc tgtaaaagtt atgcaaaccg	120
aaaacgcaac ccgcacaagg aattagccga ttatgactat aatattttaa aagctatatt	180
acaaaaaagca aacggagagt agtaaataga aatggtgctg ttacagctt gtaatattaa	240
gagtgttagta tatagggtgt tgaaacggaa aagataattt gctaaataat aaaggatgg	300
tatTTTaaattt	310

<210> 20
 <211> 150
 <212> DNA
 <213> *Lactobacillus fermentum*

<400> 20	
aataaataag attaatcaat tttattgcga gactgatgga atattatttc cttctgtctc	60
gcttttttgg gctaataatgt tataatggta gtacttctta tggggatgtt tatggattcg	120
acaggtatag gtcgagttc aactgcgtt	150